

DESCRIPTION, NATURAL HISTORY, AND DISTRIBUTION
OF A NEW SPECIES OF *ERETRIS*
(SATYRIDAE) FROM COSTA RICA

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ABSTRACT. *Eretris suzannae* (Satyridae) is described as a new species from Costa Rica. It is compared with the other three species of Central American *Eretris*. The natural history and distribution of *E. suzannae* are described, with reference to the restricted habitat where it occurs.

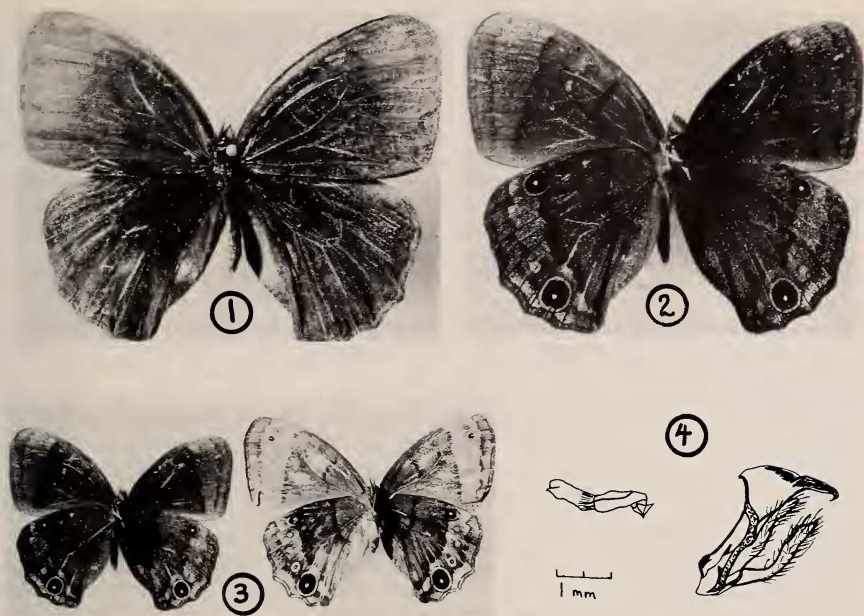
The Neotropical genus *Eretris* (Satyridae: Pronophilinae) is a montane group which has its highest species diversity in the South American Andes but which ranges as far north as Guatemala. Three Central American species are recorded in the literature, of which one is of dubious occurrence. During my studies on the butterfly fauna of Costa Rica I acquired a thorough knowledge of Costa Rican butterflies. When comparing my material with material in the major world museums and in the literature, I found an undescribed species of *Eretris*. In this paper I describe *Eretris suzannae* as a new species and present my observations on its natural history in Costa Rica.

Eretris suzannae DeVries, new species

Description. Eyes densely hairy. **Antennae** rufous, very sparsely scaled, basal quarter dorsally scaled dark brown, terminal three segments of the club fuscous with a few white scales at the extreme tip, each segment ringed with a fuscous band anteriorly.

Male. Upperside ground color fuscous, darker in the broad discal androconial area; submarginal dark faint line, extending on each wing from apex to tornus. **FW underside:** ground color fuscous; a dark slightly wavy postbasal line located about $\frac{1}{5}$ of way from wing base, running from Sc to 2A; within cell the line is slightly convex, crossing cell to Cu₂, then more irregular and fainter to 2A; postmedial line dark, wavy, running from near costa to 2A about $\frac{3}{4}$ of way from base; ground color of area beyond postmedian line lighter, with faint subapical greyish scaling; an irregular submarginal line runs from costa to 2A, a thin marginal band runs from R₂ to 2A, slightly rufous; basal edge of this band with a fine dark line. **Fringe** black interspaced with grey. **HW underside:** ground color fuscous; a dark postbasal line runs straight from costa about $\frac{1}{2}$ of way from base, through cell, angled basally below posterior cell margin, crossing cell Cu₂-2A and terminating within anal cell about $\frac{1}{3}$ of way from base; an irregular postmedial line runs from costa at $\frac{2}{3}$ of way to just basad of tornus; a little over half way from this line to margin a wavy submarginal line, black anterior to subternal ocellus, rufous posterior to it; area between postmedian and subterminal lines lightly greyish; a subapical ocellus between Rs and M₁, interrupting the postmedian line, black with small white central pupil, ringed thinly with tawny; a much larger subternal ocellus between Cu₁ and Cu₂, interrupting the submarginal line, with a minute white pupil distad of center and a thin, tawny ring that distally just touches the marginal band; a minute rufous pupillate ocellus between postmedian and submarginal lines,

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FIGS. 1-4. *Eretris suzannae*. 1, dorsal aspect of paratype ♂; 2, ventral aspect of paratype ♂; 3, ventral aspects of both sexes, male (left) and female (right), both are paratypes. Note the higher contrast of color in the female; 4, drawing of entire male genitalia.

nearer the latter, in cell M_3-Cu_1 ; a thin rufescent marginal band runs from apex to tornus; inner margin and tornal area basad to postbasal line with a rufous blush; ground color greyish from M_3 to 2A between submarginal line and marginal band. Fringe same as on FW.

Female differs from the male as follows: **HW upperside**: pupillate ocellus present near tornus corresponding to the one on the underside but smaller, ringed with a thin band of rufous. Tornal and submarginal area dull rufous. **FW underside**: a row of two or three additional submarginal ocelli, at times faint, in Cu_1-M_3 , M_3-M_2 , and M_2-M_1 . A minute white dot between M_1 and R_5 . Postbasal, postmedial, and submarginal lines more rufous. **HW underside**: ground color much more rufous, the whole appearance much richer and more contrasting; subapical and tornal ocelli larger with a row of four tiny ocelli between them; distal greyish scaling much more pronounced.

Variation. Variation among males is common, involving presence or absence of tiny subapical ocelli on the FW underside between postmedial and submarginal lines, frequent presence of one or more minute submarginal ocelli between the larger subapical and tornal ocelli on the HW underside, and the occasional presence of a faint tornal ocellus on the HW upperside.

Length of forewing. ♂, 23.0 to 25.2 mm ($n = 20$); ♀, 26.0 to 26.3 mm ($n = 8$).

Types. Holotype: ♂, Costa Rica, San Jose Prov. 900 m, Parque Braullio Carrillo, 30 June 1978; leg. P. J. DeVries. (Figs. 1-4). Paratypes: All from Costa Rica, leg. P. J. DeVries except as noted otherwise. In (MNCR): 4 ♂, same data as the Holotype; the following from the same locality as Holotype: ♂, 10 April 1977, ♂, 6 August 1977, ♂, 20 August 1977, ♀, 17 December 1977, ♀, 6 November 1976, leg. F. G. Stiles; ♂, vicinity of La Cinchona on Sarapiquí road, 1200 m, Heredia Prov., 20 June 1976; 2 ♂, Peñas Blancas valley near Monte Verde reserve, 1300 m, 19 February 1978. In

(CM): ♂, Tres Rios, Cartago Prov., Aug. (no date), leg. W. Schaus. In (USNM): 2 ♂, Carillo, May, leg. W. Schaus; ♂, San Geronimo, Oct., leg. W. Schaus, ♀, Carillo, Oct., leg. W. Schaus; ♀, Mount Poas, April, leg. W. Schaus. In (BMNH): 2 ♂, Bajo la Hondura, San Jose Prov., 30 June 1978, leg. P. J. DeVries, ♀, San Geronimo, leg. W. Schaus; ♀, Carillo, leg. Underwood. In (GBS): ♂, Rio Sarapiquí, 1300 m, 26 June 1976, leg. G. B. Small; ♀, Rio Sarapiquí, 1300 m, 27 June 1976, leg. G. B. Small.

Disposition: The Holotype has been placed in the Allyn Museum of Entomology; paratypes in the Museo Nacional de Costa Rica (MNCR), Carnegie Museum (CM), U.S. National Museum (USNM), the British Museum (Nat. Hist.) (BMNH), and the private collection of Gordon B. Small in Panama (GBS).

Etymology. I name this species in memory of my late sister Suzannae Mary DeVries.

Comparison with Central American *Eretris*. The three other Central American species of *Eretris* (*E. hulda* Butler and Druce, *E. subrufescens* Grose-Smith and Kirby, and *E. maria* Schaus) differ from *E. suzannae* in the following ways:

E. hulda, known from Costa Rica and Panama, never has large ocelli on the HW underside and has a wavy postmedial HW band that expands from the tornus as it progresses toward the cell. Appressed to the basal margin of this postmedial band is an irregular, thin medial line of golden brown. Although variable to a slight degree, the above characters are constant and unmistakable. (See Seitz Pl. 56c and Godman and Salvin Pl. 9, nos. 7 and 8 for illustrations.) *E. hulda* in Costa Rica inhabits high montane forest habitats and is in greatest abundance between 2400–3000 m elevation. In five years' fieldwork I have not found *E. suzannae* and *E. hulda* flying together. Of the Central American species, *E. hulda* is the most abundant in collections and is certainly the most common in Costa Rica and Panama.

E. subrufescens was described from a single specimen labeled "Costa Rica." The type is in the BMNH. Besides the type specimen I have seen no specimens from Central America in collections or in the field; the bulk of the material is from Colombia. These facts lead me to believe that *E. subrufescens* is of dubious occurrence in Central America. Specimens seen by me have a submarginal row of tiny black dots (ocelli) on the HW underside set in a bluish of wide rufous along the distal 1/3. This species lacks pupillate ocelli. See Seitz pl. 56c and Grose-Smith and Kirby, 1892–1897 (original description) for illustrations. In the USNM and CM *E. suzannae* was incorrectly determined (det. Schaus) as *E. subrufescens*.

E. maria was described by Schaus (1920) from Volcan Santa Maria in Guatemala. Very few specimens are known, and all are from the Guatemalan type locality. This species is phenotypically most similar to *E. suzannae*, but differs consistently by two tiny tornal ocelli on the underside of the HW (both sides in the female) being less darkly fuscous, being smaller in size, with the ocelli round and not ovoid, and having the pupils centralized not eccentric. The genitalia of the two species differ in that *E. maria* has the gnathos longer and straighter, the penis longer and more strongly bowed, the harpe with a gentle upward curve and not with an angle; the dorsal portion of the tegumen is flatter and not so dome-shaped as in *E. suzannae*, giving the interface between the tegumen and the uncus a flatter angle.

Natural History. In Costa Rica, *E. suzannae* occurs locally along ravines and mountain pass habitats between 900–1300 m elevation. My field observations of *E. suzannae* over four years indicate that it is restricted to a narrow transitional habitat on the Atlantic drainage between montane cloud forest and the foothills of the Cordillera Central. This habitat, which I term the "Carrillo belt," shows a high degree of endemism and biotic peculiarity for butterflies (pers. obs), birds (F. G. Stiles, pers. comm.), Orthoptera (H. Rowell, pers. comm.), and ferns (L. D. Gomez, pers. comm.) in contrast to other areas of Costa Rica. This perhaps is an indication that *E. suzannae* is an endemic Costa Rican species although it may be found in northern Panama. The known distribution of *E. suzannae* is shown in Fig. 4. The "Carrillo belt" is fairly well outlined by the cluster of localities around the locality Bajo la Hondura which constitutes a belt of volcanoes.



FIG. 5. Known distribution of *Eretris suzannae* in Costa Rica. Explanations of the capital letter locality plotting are as follows: **A**—Peñas Blancas. This locality is the farthest north that *E. suzannae* has been traced. The habitat where the collections were made is below the mountain pass in the Monte Verde Forest Reserve on the Atlantic drainage and represents a continuation of the "belt" that runs along the Cordillera Central where *E. suzannae* is confined. **B**—La Cinchona. Along the Sarapiquí road at the edge of the steep ravine where the Rio de la Paz is located on the Atlantic slope of Volcan Poas below the cloud forest within the "belt" mentioned in the text. **C**—Volcan Poas. The author has not seen *E. suzannae* on the Volcan. I include this locality due to the specimens labeled as such in the collection of W. Schaus in the USNM. **D**—Bajo la Hondura. The type locality located in the mountain pass between Volcan Barba and Volcan Irazu. This habitat typifies the belt of endemism. In collections of Lepidoptera made at the turn of the century there are many specimens from Costa Rica labeled "Carillo" which, judging from the species I have seen, included the Bajo la Hondura locality. In actuality Carrillo is below 300 m and has no resident high elevation species. **E**—Tres Rios. Located on the Pacific slope of Volcan Irazu and at one time was an extension of the forest typical of the "belt." **F**—Tapanti. In the Talamanca mountain range at the interface of the Talamanca and the Reventazon Valley where there is a sun shadow habitat atypical of the surrounding forest. In this habitat other endemic Costa Rican butterflies are known although it is not part of the Carillo belt of endemism.

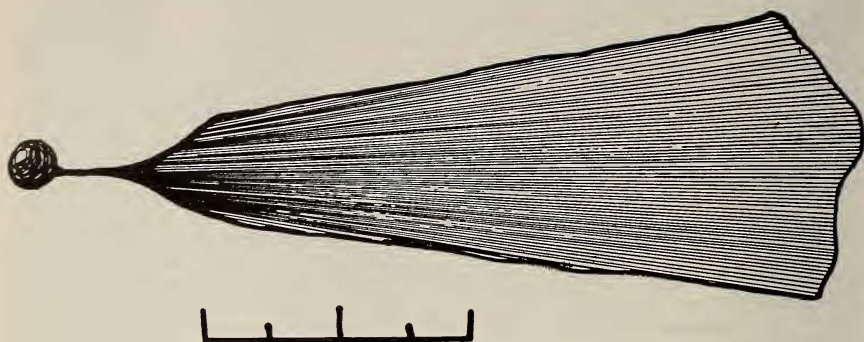


FIG. 6. Illustration of the oviposition site of *E. suzannae* on the terminal spine of the hostplant leaf. Drawn from a photograph. Full scale line = 1 cm.

In association with *E. suzannae* are the following satyrid butterflies: *Cyllopsis rogersi* Godman and Salvin, *C. vetones* Godman and Salvin, *Pedaliodes cremera* Godman and Salvin, *P. perpena* Hewitson, *Catargynnis rogersi* Godman and Salvin, *Oxeochistus puerta submaculatus* Butler and Druce, *Drucina leonata* Butler, and *Oressinoma typhla* Westwood and Hewitson.

E. suzannae flies all year in the vicinity of its hostplant, *Chusquea* sp. (Bambusaceae), a tall bamboo (up to 15 m) that grows along the edges of ravines. The butterfly darts in and out of the *Chusquea* thickets or sails over the tops of them along flyways, interacting with other satyrid butterflies by chasing and circling. The butterfly stays very close to the thickets. Flight periods are restricted to hours of sunshine which normally occur from about 0730 to 1230 h. After this time, cloud cover builds up and obscures the sun.

Adult butterflies feed on fungi that grow on fallen tree trunks and rotting wood, probably Mucorales and Thelephorales. They also feed on the fallen and unfallen fruits of *Clusia* sp. (Guttiferae), the flowers and fruits of *Satyria warzewiscia* (Ericaceae), and an unidentified melostomaceous tree.

Oviposition takes place any time of day during sunshine. A single egg is laid on the terminal spine of a *Chusquea* leaf (Fig. 6) as is done by a number of the high elevation tropical satyrids (pers. obs.). The egg is pale green and very cryptic on the hostplant. After oviposition the female flies a short distance (2–10 m) from the oviposition site and rests with her wings open for 2–5 minutes in a sunny spot. She then flies to the hostplant and immediately oviposits again. This entire process is repeated. I watched one female repeat this behavior eight separate times after which she moved down the ravine and out of sight. The eggs hatch after four to five days. The first instar larvae eat the egg shells. The following day they begin eating the *Chusquea* leaf. The first instar larvae are pale green with black, unforked head capsules, measuring approximately 4 mm. More details about the early stages will be presented in a later report.

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